S. B. SEXTON.

Base Burning Stove.

No. 44,345. Patented Sept. 20, 1864.

Fig. 1.

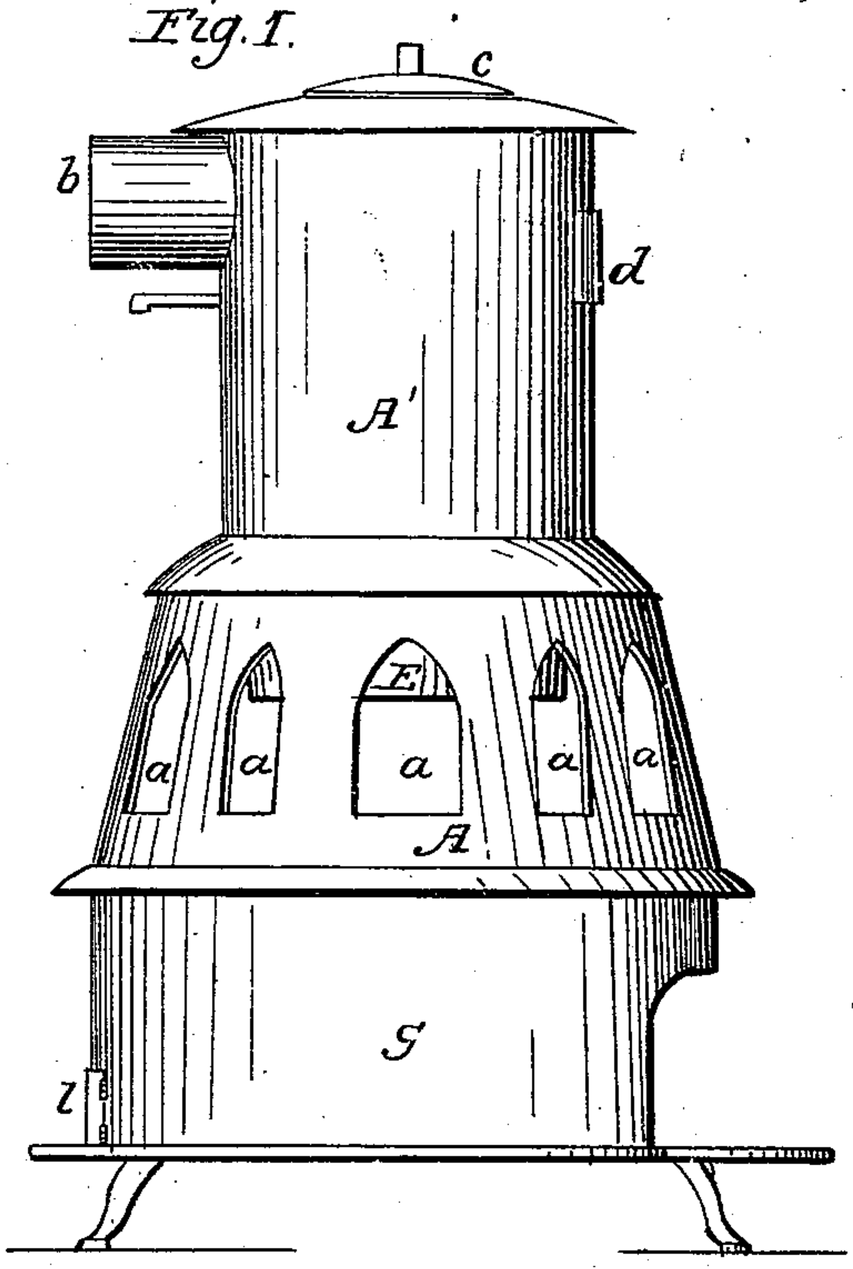


Fig. 2.

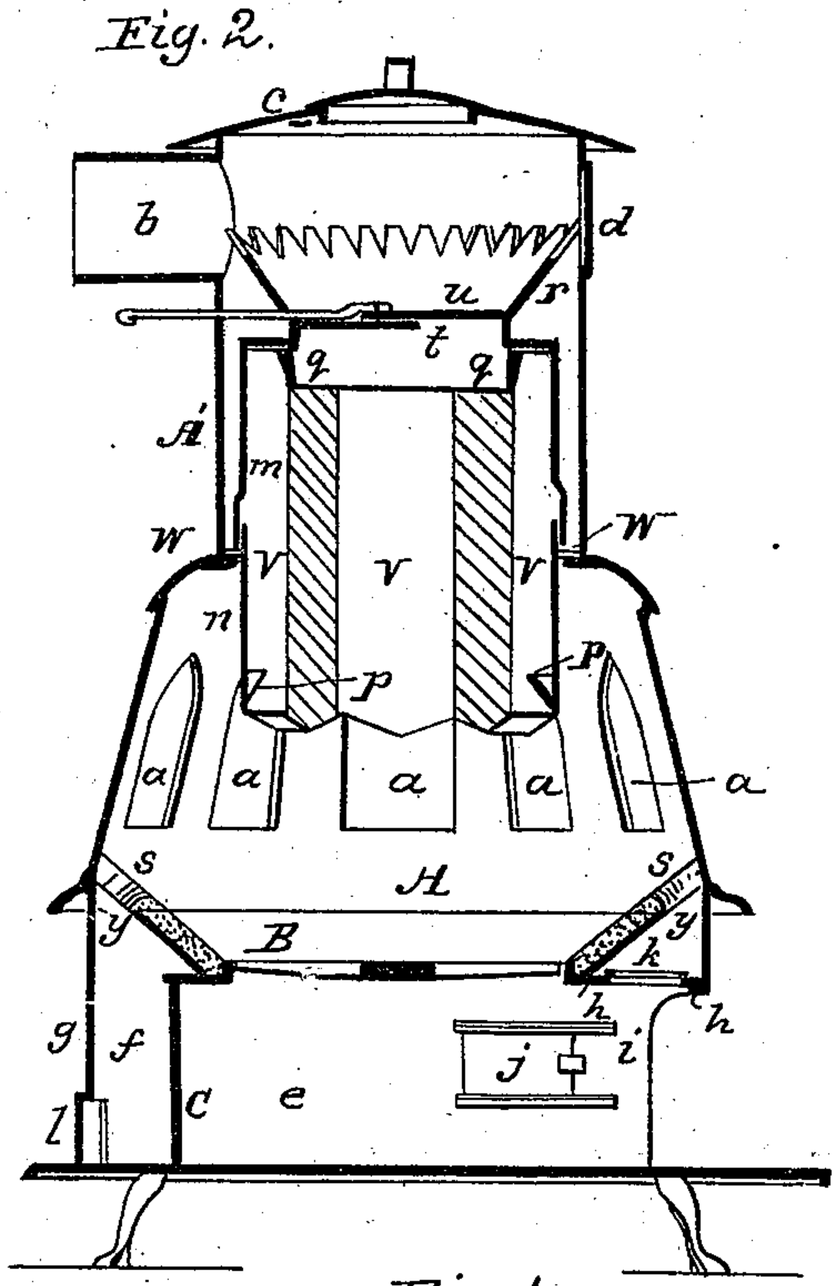
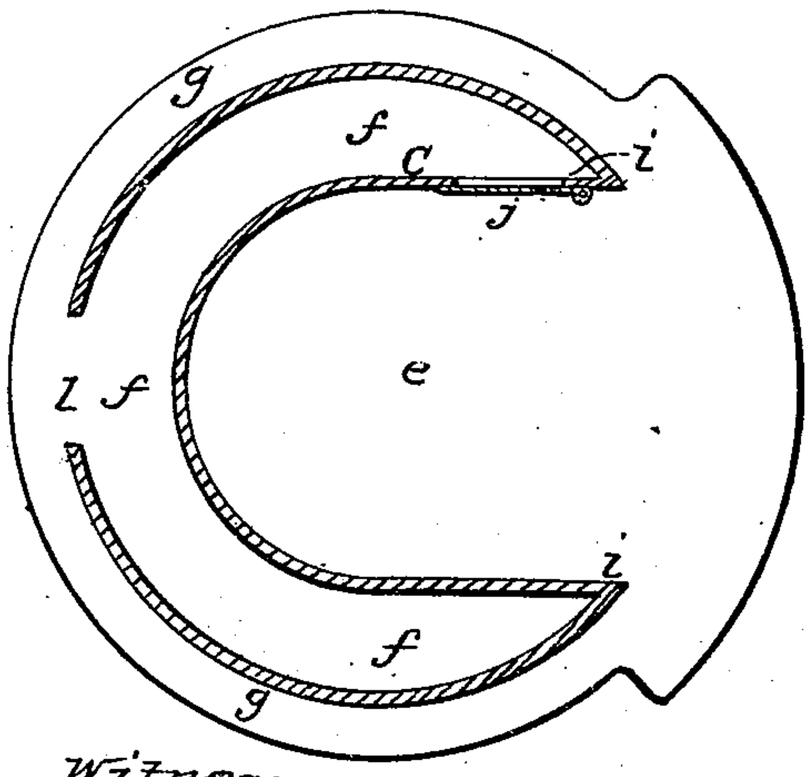


Fig. 3.



Witnesses:
C. Schaefer.
R. P. Campbell

Fig. 4.

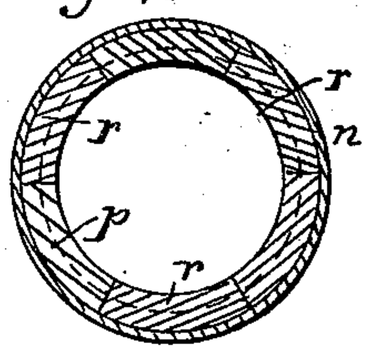


Fig. 6.

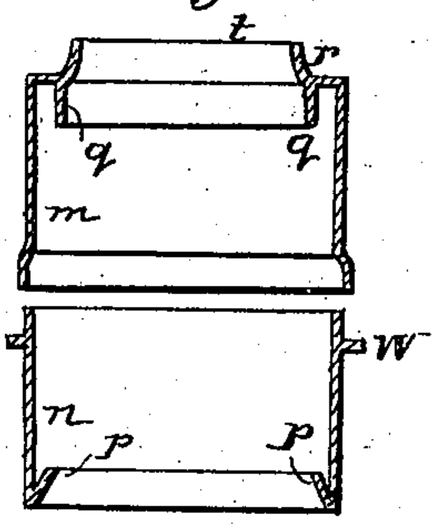


Fig. 5.

Fig. 7.

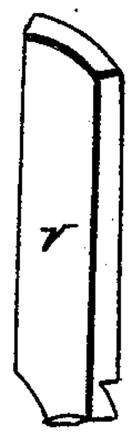


Fig. 8.

Inventor:
S. B. Sexton.
by his Attys
Mason Fenwick & Lawrence

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

S. B. SEXTON, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN BASE-BURNING STOVES.

Specification forming part of Letters Patent No. **44,345**, dated September 20, 1864.

To all whom it may concern:

Be it known that I, S. B. SEXTON, of Baltimore, in the State of Maryland, have invented a new and useful Improvement in Base-Burning or Gas-Burning Stoves; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side or external elevation. Fig. 2 is a vertical central section. Fig. 3 is a horizontal section below the grate. Figs. 4, 5, 6, 7, and 8 are views of the magazine.

Similar letters of reference in the several figures indicate corresponding parts.

The invention here represented consists, first, in a new construction of magazine for base-burning stoves; second, in a new construction of base for such stoves.

The first feature of my invention is designed to render the magazine more durable under the action of the very intense heat to which it is necessarily subjected.

The second feature of my invention is designed to render the base or lower part of the stove effective for radiating heat without the aid of a downward draft or diving-flues outside of the fire-box.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A is the combustion-chamber of the stove. It is constructed with illumination-windows all around or partly around its circumference, as indicated at *a a*. These apertures are covered with fixed, removable, or hinged mica doors or windows in any of the known ways. The combustion-chamber A diminishes in diameter as it extends upward, and finally terminates in a cylinder, A′, into which a draft-flue, *b*, is inserted. The cylindrical extension A′ has a hole with a removable cover in its top, as shown at *c*. If desirable, a door, *d*, may be provided in the side of the cylinder, as shown. In that case the coal would be introduced through the door *d*, and therefore the hole *c* would be unnecessary.

B is the grate or base-burning surface of the combustion-chamber. This device rests upon a cylindrical or nearly cylindrical stand, which extends up from the base plate of the whole structure, as indicated at C. This stand incloses the space *e*, usually called the "ash-pit." Around this stand the wall of the combustion-chamber is extended, except at the place where the ash-pan is inserted. By this construction a chamber almost entirely around the ash-pit is secured, as indicated at *f f*. Now, by having the flange of the grate or base-burning surface of smaller diameter than the lower extension, *g*, of the combustion-chamber, a space, *y*, for heated air to enter is left between the wall of the stove and the grate-casting; or the same end may be secured by leaving spaces between the lining of the base-burning surface, as illustrated in red in Fig. 2 at *s*.

In order to prevent the descent of gases at the place where the front of the ash-drawer is located, I have walled up the stove at *h i*, both horizontally and vertically, the vertical walls being an extension of the stand C, as indicated by *i*; and in order to provide for the checking of the fire, and also for the escape of such light ashes as float or fly about in the ash-pit when the fire is being agitated back into the hot-air chamber, I have made dampers *j k*. I have further provided a door at *l*, through which to remove the accumulated ashes from the chamber *f f*. This door might be made to answer the purpose of the damper *k*, as well as the purpose stated. In that event the damper *k* could be dispensed with.

It may be proper to state that it is desirable sometimes to check the fire by a counter-draft; hence the use of the damper *j* or *k* or the door *l* for the introduction of a draft above the base burning surface. The draft to promote combustion is in the front of the ash-drawer, and whenever it is desired to have this draft act with full effect the dampers *j k* or the door *l* should be tightly closed. The ash-drawer draft leads up directly through the grate, while the other drafts lead up outside of it. This same damper *j* or *k* will answer as an outlet for flying ashes when the grate or fire is stirred.

It is obvious that as there is a strong upward draft to keep up combustion the flying ashes will, when the damper *j* is opened, enter the chamber *f f*, instead of passing into the room.

I would here remark that it is an important desideratum to heat the lower part of the stove—*i. e.*, that part below the base-burning

or grated surface. I have found that this can be accomplished by forming the combustion-chamber with an extension, *g*, or hot-air chamber *f f*, as shown, for a large amount of the heat thrown off from the incandescent coal will find its way, by reason of radiation, reverberation, convection, and expansion of heated gases or air within the stove, into this chamber, and before it escapes will impart a large amount of its heat to the extension wall *g* of the combustion chamber or fire-box.

I do not propose to use a downward draft and an upward draft combined, as such a construction involves the use of a chimney-flue pipe extending up from the base of the stove, adding expense and cumbersomeness to the stove.

E is the magazine which holds the supply-coal. It is constructed in two parts, *m n*, which are cast. The part *m* fits down over the upper end of the part *n*. On the inner circumference of the lower end of the part *n* a conical flange is cast, as shown at *p*. The part *m* at its upper end is cast with an internal ring-flange or flanges of smaller diameter than said part *m*, as indicated at *q*, thus forming a continuous groove for the reception of the upper end of the fire-brick. The ring-flange also extends upward, and forms a funnel conductor for the coal, which is supplied as indicated at *r*. This conductor may, if desirable, be a separate device. Through the top of part *m* a hole, *t*, is formed, and over this hole a valve, *u*, is placed, this valve being worked by a rod from the outside of the stove at such times as it may be necessary to let the pent-up gases pass into the draft-flue.

In the drawings I have shown clearly the manner in which the fire-brick or other lining to the magazine is constructed, and it is only necessary to say that the bricks *v* are set, as shown in Fig. 4, within the part *n*, as shown in Fig. 2, and that then the part *m* is set down over the bricks and made to overlap to a suitable extent the upper end of the part *n*, as shown in said figure. Thus put togther, and the part *n*, by means of lugs *w*, resting upon the wall of the stove, the magazine will remain firm and durable under the most intense heat. The bricks cannot readily descend, nor can they move outward—a difficulty heretofore not effectually overcome, for the reason that the iron cylinder, when subjected to great heat, warps and curls into various forms, and often leaves the bricks unsupported and free to fall down upon the grate.

What I claim as my invention, and desire to secure by Letters Patent as an improvement in stoves which burn coal on what is known as the base-burning principle, is—

1. The combination of a suspended or coal-supply magazine, a combustion-chamber, a base-burning surface, and a hot-air chamber around the ash-pit, substantially as and for the purpose set.

2. The chamber *f f* and a space or spaces at the margin of the base-burning surface, substantially in the manner and for the purpose described.

3. The damper *j*, in combination with the chamber *f f*, and space at the margin of the grate, substantially as and for the purpose set forth.

4. The door *l*, in combination with the chamber *f f* and extended base-burning surface, with a space around its margin, substantially in the manner and for the purpose described.

5. In a stove where the coal is burned and allowed to flow freely out to the wall of the combustion-chamber on a shallow base-burning surface, providing for the heating of the lower part of the stove, applying a counter-draft, and preventing the flying of the ashes into the room, all substantially in the manner and for the purpose described.

6. The construction of the coal-supply magazine in two parts so that the fire-brick or other material shall be confined within and between said parts, substantially in the manner and for the purpose described.

S. B. SEXTON.

Witnesses:
SAML. MCCOY,
GEORGE LETLEVAN.